Installation Instructions

Indoor Direct Vent Tankless Water Heater

Models GN75DNSRSA, GN94DNSRSA, GP94DNSRSA

FOR INDOOR APPLICATIONS ONLY

? Questions? Call 888.HOTWTER (888.468.9837) or Visit our website at ge.com

⚠ WARNING: Read entire manual. Failure to follow all guides and rules could cause personal injury or property damage.

- **Check with your state and/or local public works department for plumbing codes. You must follow their guides as you install the Water Heater.**

NOTE: Failure to comply with these installation instructions will void the product warranty, and the installer will be responsible for any service, repair or damages caused thereby.

BEFORE BEGINNING INSTALLATION

Read these instructions completely and carefully.

- **IMPORTANT** — Save these instructions for local inspector's use.
- **IMPORTANT** — Observe all governing codes and ordinances.
- **Note to Installer –** Be sure to leave these instructions with the Consumer.
- **Note to Consumer –** Keep these instructions for future reference.
- Proper installation is the responsibility of the installer.
- Product failure due to improper installation is not covered under the Warranty.

⚠ **Recognize this symbol as an indication of Important Safety Information!**

SAFETY PRECAUTIONS

⚠ WARNING: If the information in these instructions is not followed exactly, a fire or explosion may result, causing property damage, personal injury or death.

⚠ **FOR YOUR SAFETY!**

- **Do not store or use gasoline or other flammable vapors or liquids or other combustible materials in the vicinity of this or any other appliance. To do so may result in an explosion or fire.**
- **WHAT TO DO IF YOU SMELL GAS**
  - **Do not try to light any appliance.**
  - **Do not touch any electrical switch; do not use any phone in your building.**
  - **Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.**
  - **If you cannot reach your gas supplier, call the fire department.**
  - **Do not return to your home until authorized by the gas supplier or fire department.**
- **Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or death. Refer to this manual. Installation and service must be performed by a qualified installer, service agency or the gas supplier.**
- **This water heater must be vented outdoors using approved ducting materials.**
- **Service information and wiring diagram are located behind front panel.**
- **Service must be performed by a qualified service agency.**
- **This appliance must be properly grounded and installed as described in these instructions.**

⚠ DANGER

Read and follow water heater warnings and instructions. If owner's manual is missing, contact the retailer or manufacturer.

SAFETY PRECAUTIONS (cont.)

⚠ WARNING: Do not use substitute materials. Use only parts certified with the appliance.

- This appliance must be installed, inspected and leak tested by a state- or city-qualified licensed contractor. It is the responsibility of the person having the water heater installed to ensure the installing contractor has proper licenses and permits for installing water heaters in your location. GE highly recommends that installers attend a product knowledge class to ensure customer satisfaction and warranty coverage. Failure to comply with state and local codes pertaining to water heater installations may void the warranty.
- This appliance is not to be installed outdoors.
- The installation must conform with local codes or, in the absence of local codes, with the *National Fuel Gas Code, ANSI Z223.1/NFPA 54*, or the *Natural Gas and Propane Installation Code, CSA B149.1*.
- The appliance and its appliance main gas valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psi (3.5 kPa) (13.84 in W.C.).
- The appliance must be isolated from the gas supply piping system by closing its individual manual shut-off valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psi (3.5 kPa) (13.84 in W.C.).
- Carefully follow the venting instructions beginning on page 19 and in the *Maintenance* section in the Owner's Manual for adequate combustion and ventilation air.
- The appliance should be located in an area where water leakage of the unit or connections will not result in damage to the area adjacent to the appliance or to lower floors of the structure. When such locations cannot be avoided, it is recommended that a suitable drain pan, adequately drained, be installed under the appliance. The pan must not restrict combustion airflow.

SAFETY PRECAUTIONS (cont.)

- The flow of combustion and ventilation air shall not be obstructed.
- This appliance is not suitable for use in an application such as a pool or spa heater that uses chemically treated water. (This appliance is suitable for filling large or whirlpool bath tubs with potable water.)
- If a water heater is installed in a closed-water supply system, such as one having a backflow preventer in the cold water supply line, means shall be provided to control thermal expansion. Contact the water supplier or local plumbing inspector on how to control this situation.
- Should overheating occur or the gas supply fail to shut off, turn off the manual gas control valve to the appliance.
- Keep the air intake (at the flue terminal external to the home) location free of chemicals, such as chlorine or bleach, that produce fumes. These fumes can damage components and reduce the life of your appliance.

CAUTION: DO NOT operate the water heater if any part of the appliance has been under water.

CAUTION: BURN HAZARD. Hot exhaust and vent may cause serious burns. Keep back from water heater unit. Keep small children and animals away from unit.

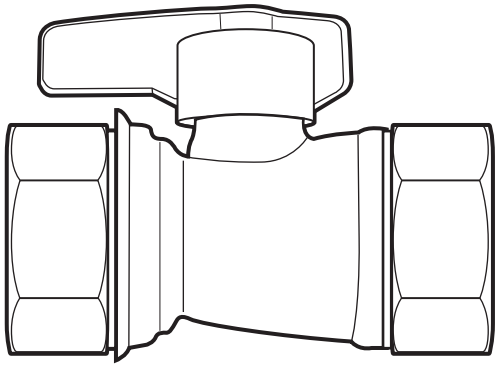
CAUTION: Hot Water outlet pipes leaving unit can be hot to touch. Insulation must be used for hot water pipes below 36″ due to burn risk to children.

⚠ WARNING: This unit is not intended or qualified for use in manufactured homes, mobile homes or recreational vehicles.

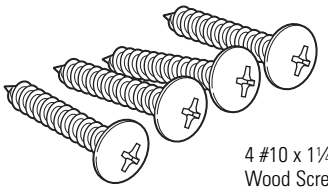
Installation Instructions

PARTS PROVIDED

Locate the parts packed with the Water Heater.



Gas Valve 3/4″ FNPT Ball Valve



4 #10 x 1¼″
Wood Screws

TOOLS YOU WILL NEED

- Pipe Wrenches (2)
- Adjustable Pliers
- Screwdrivers (2)
- Wire Cutters
- Gloves
- Safety Glasses

MATERIALS YOU WILL NEED TO SUPPLY

- Soap Solution
- Pipe Compound
- Approved Venting
- 5/8″ ID PVC Flexible Tubing
- Pipe Fittings Required:
  - Unions
  - Ball Valves
  - Drain Valves
  - Pressure Relief Valve
- 2 Conductor 22 AWG Wire for Remote Control
- Single Gang Electrical Box
- Wire Nuts
- Concrete Wall Anchors (Optional)

OTHER TOOLS THAT MIGHT BE REQUIRED

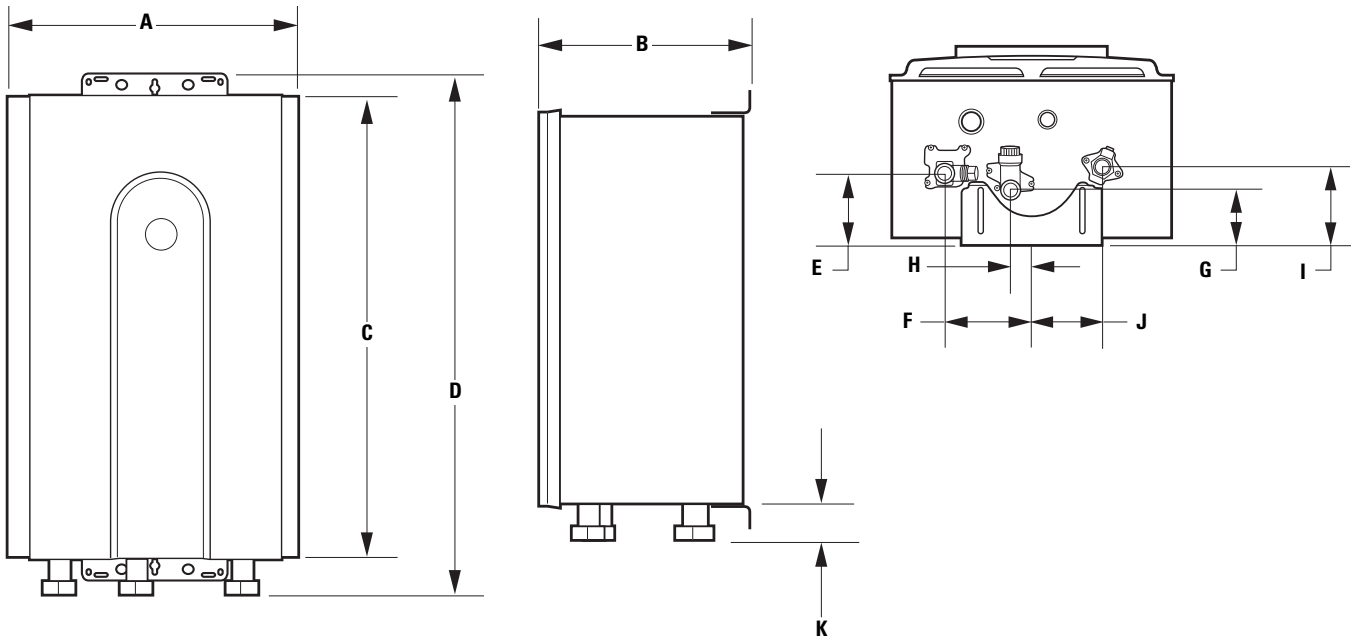
- Hammer Drill with Concrete Bits
- Saw
- Threading Machine with Heads and Oiler
- Core Drill with Diamond Head
- Torch Set
- Copper Tubing Cutter
- Steel Pipe Cutter

OTHER MATERIALS THAT MIGHT BE NEEDED

- Heat Tape
- Pipe Insulation
- Electrical Wire and Conduit per Local Code
- Air Inlet Screen
- Optional Pipe Cover AGTPCM
- Optional Remote Controller AGTRC1

Your installation components may vary.

DIMENSIONS



DIM.	DESCRIPTION	GN75/GN94/GP94DNSRSA IN. (MM)
A	Width	14 (355.6)
B	Depth	9⅝ (244.5)*
C	Height – Unit	22⅞ (582)
D	Height – with brackets	25½ (647.7)
E	Hot Water Outlet – from wall	3⅝ (91)*
F	Hot Water Outlet – from center	4⁵⁄₁₆ (110)
G	Cold Water Inlet – from wall	2¹³⁄₁₆ (70)*
H	Cold Water Inlet – from center	1⅛ (27)
I	Gas Connection – from wall	3⅞ (99)*
J	Gas Connection – from center	3½ (89)
K	From base to gas connection	1⅝ (40)
	From base to cold connection	2 (50)
	From base to hot connection	1⅝ (41)

*This is the minimum dimension from the wall. The wall bracket is adjustable to allow an additional 1.57 inches (40 mm).

PLANNING FOR VENTING

INTAKE/EXHAUST GUIDELINES

Refer to the specific instructions on your vent product for additional installation requirements.

- This water heater is a direct vent water heater and therefore is certified and listed with the vent system. You must use vent components that are certified and listed with the water heater model. See approved venting list on page 20.
- Do not combine vent components from different manufacturers.
- The vent system must vent directly to the outside of the building and use outside air for combustion.
- Every vent connection must be accessible for inspection, cleaning and replacement.
- Avoid dips or sags in horizontal vent runs by installing supports per the vent manufacturer's instructions.
- Support horizontal vent runs every four feet and all vertical vent runs every six feet or in accordance with local codes.
- Venting should be as direct as possible with a minimum number of pipe fittings.
- Vent diameter must not be reduced.
- Do not connect the venting system with an existing vent or chimney.
- Do not connect vent with the vent pipe of any other water heater or appliance.
- Vent connections must be firmly pressed together so that the gaskets form an air-tight seal.
- The vent piece connected to the water heater must be secured with one self-tapping screw.
- Refer to the vent pipe manufacturer's instructions for component assembly instructions.
- It is recommended to install an optional inlet screen to minimize blockage and maintenance from debris. See page 20.

FLUE TERMINAL CLEARANCES

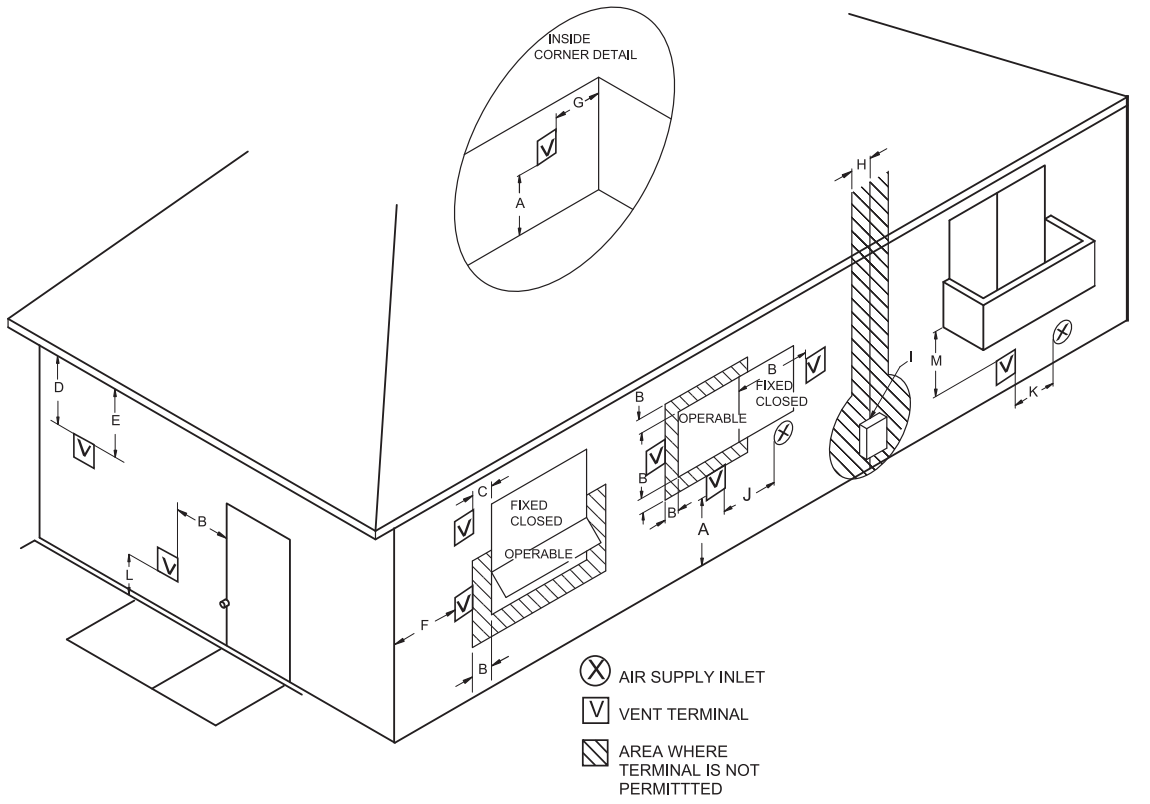
REF	DESCRIPTION	U.S. INSTALLATIONS CLEARANCES PER ANSI Z21.10.3
A	Clearance above grade, veranda, porch, deck or snowline	36 inches (91 cm)
B	Clearance to window or door that may be opened	12 inches (30 cm)
C	Clearance to permanently closed window	*
D	Vertical clearance to ventilated soffit, located above the terminal within a horizontal distance of 2 feet (61 cm) from the center line of the terminal	*
E	Clearance to unventilated soffit	*
F	Clearance to outside corner	*
G	Clearance to inside corner	*
H	Clearance to each side of center line extended above meter/regulator assembly	*
I	Clearance to service regulator vent outlet	*
J	Clearance to nonmechanical air supply inlet to building or the combustion air inlet to any other appliance	12 inches (30 cm)
K	Clearance to a mechanical air supply inlet	3 feet (91 cm) above if within 10 feet (3 m) horizontally
L	Clearance above paved sidewalk or paved driveway located on public property[1]	*
M	Clearance under veranda, porch, deck or balcony[2]	*

*For clearances not specified in ANSI Z223.1/NFPA 54, clearances are in accordance with local installation codes and the requirements of the gas supplier. Clearance to opposite wall is 24 inches (60 cm).

1 A vent shall not terminate directly above a sidewalk or paved driveway that is located between two single family dwellings and serves both dwellings.

2 Permitted only if veranda, porch, deck or balcony is fully open on a minimum of two sides beneath the floor.

FLUE TERMINAL CLEARANCES (ANSI Z21.10.3 • CSA 4.3)

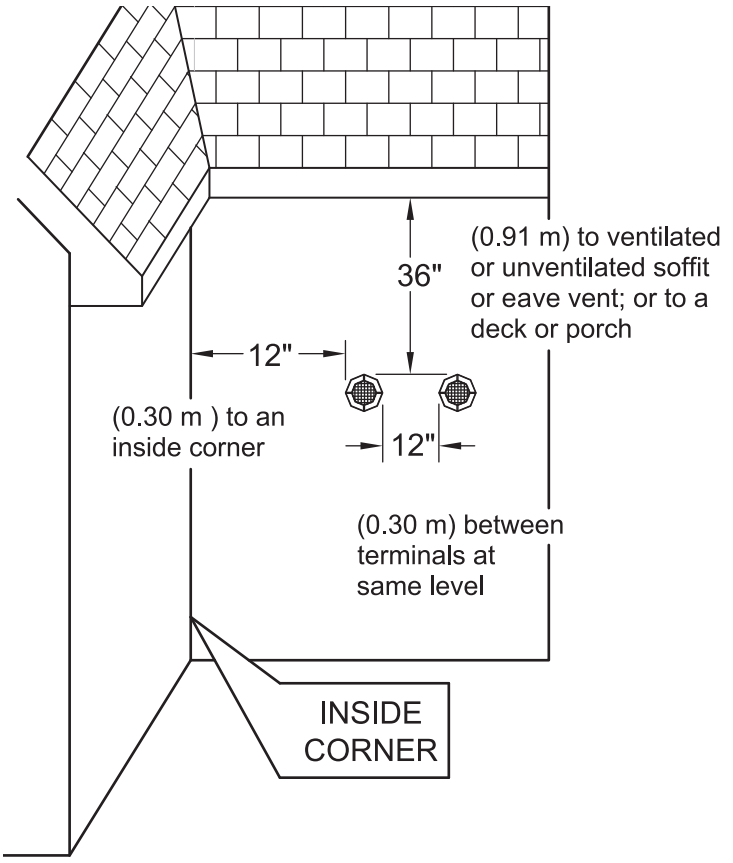


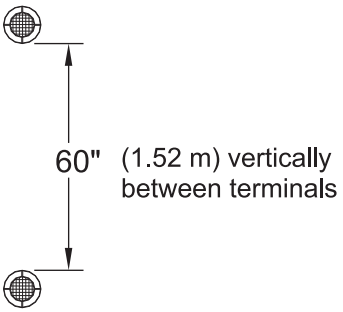
ADDITIONAL CLEARANCES – VENT TERMINAL

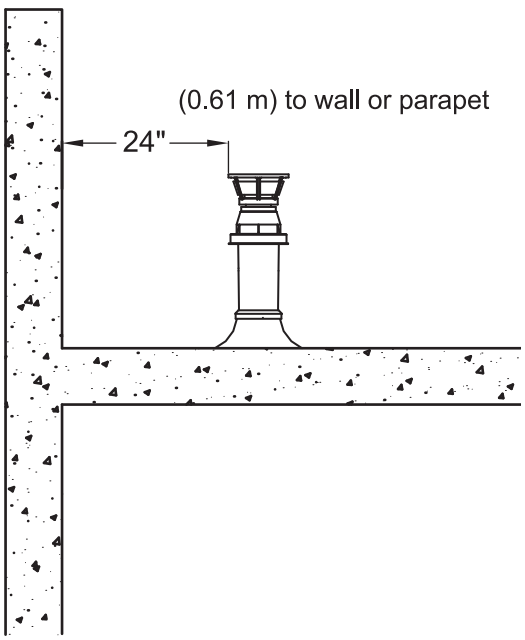
These clearances are applicable to both concentric terminations and nonconcentric vent exhaust terminations.

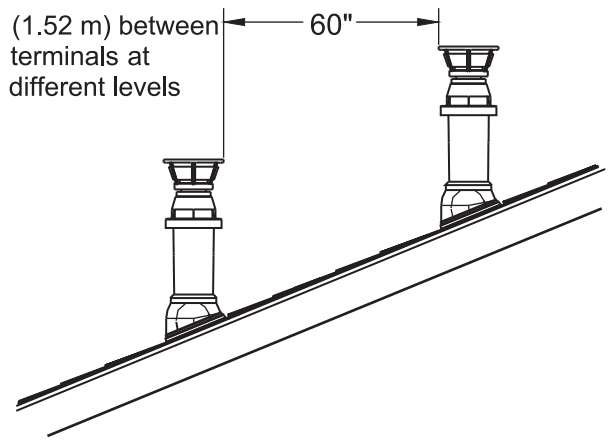
Local codes supersede these clearances.

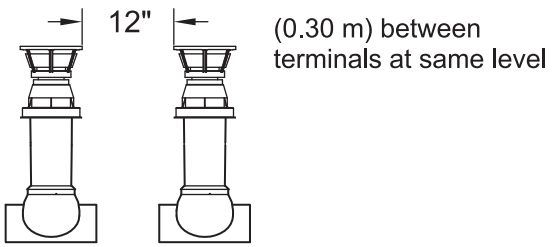
- Avoid termination locations near a dryer vent.
- Avoid termination locations near commercial cooking exhaust.


36"
(0.91 m) to ventilated or unventilated soffit or eave vent; or to a deck or porch
12"
(0.30 m) to an inside corner
12"
(0.30 m) between terminals at same level
INSIDE CORNER



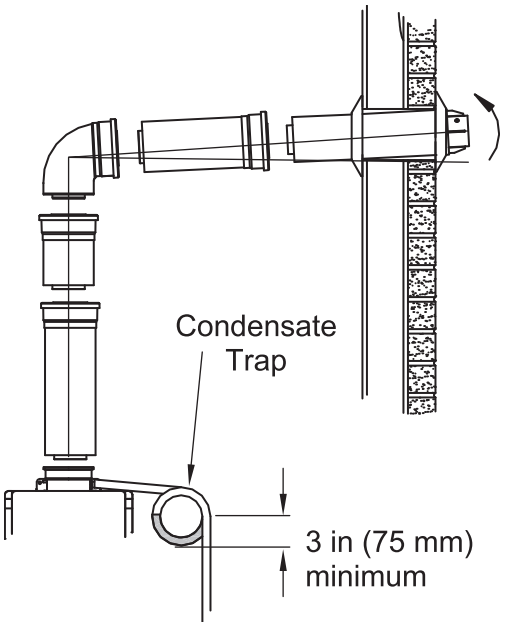




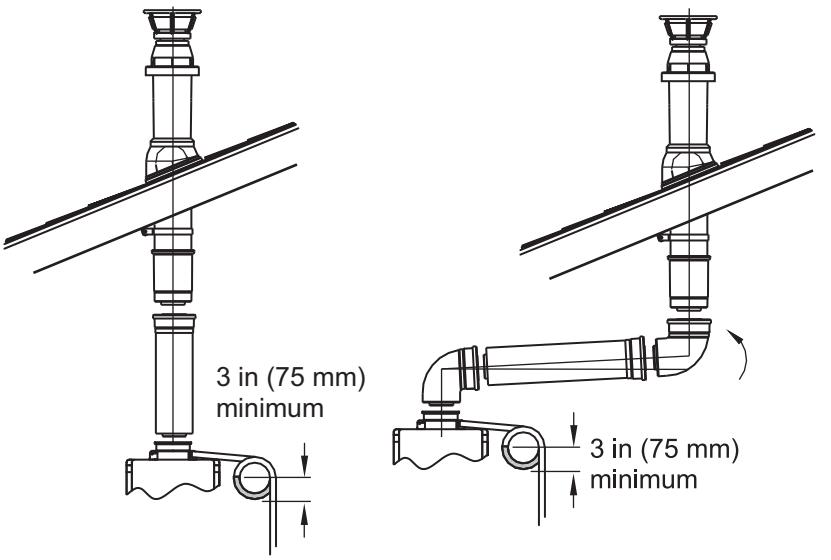


FLUE INSTALLATION – CONDENSATE DRAIN

HORIZONTAL TERMINATION WITH A CONDENSATE DRAIN

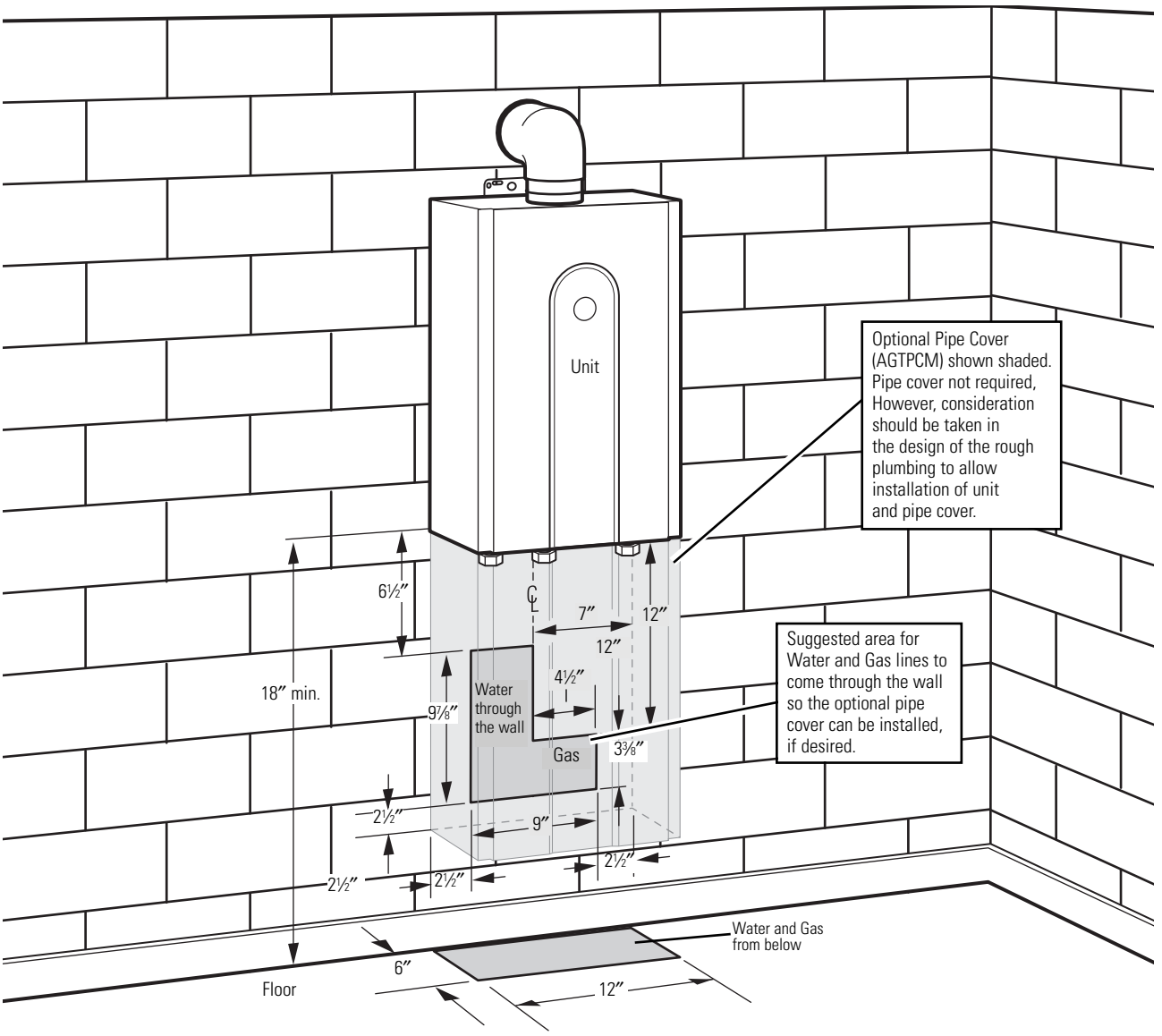


VERTICAL TERMINATION (condensate collector required in all installations)



PLANNING FOR PLUMBING

(shown with optional pipe cover)



The center of the pipes can be placed anywhere within the shaded area. The center of the pipes is recommended to be protruding only within 6″ of the mounting wall. Other specific installations may be different.

Be sure that the minimum elevation of the bottom of the unit is 16″ to meet the 36″ recommended clearance for the exhaust.

CAUTION: BURN HAZARD. Hot exhaust and vent may cause serious burns. Keep back from water heater unit. Keep small children and animals away from unit.

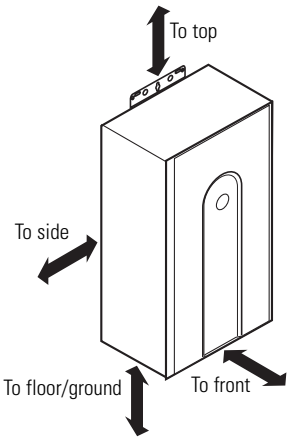
CAUTION: Hot Water outlet pipes leaving unit can be hot to touch. Insulation must be used for hot water pipes below 36″ due to burn risk to children.

NOTE: It is recommended to install the bottom of the unit at least 18″ off the ground to minimize blockage and maintenance from debris and provide room for the optional Pipe Cover Accessory Model Number AGTPCM.

NOTE: Do not install electrical outlet directly below unit. Electrical outlet must be installed less than 6 feet from unit.

CLEARANCES FOR WATER HEATER

⚠ WARNING: Combustible construction refers to adjacent walls and ceiling and should not be confused with combustible or flammable products and materials. Combustible and/or flammable products and materials should never be stored in the vicinity of this or any gas appliance.



	To combustibles	To noncombustibles
Top of heater	6 inches (152 mm)	2 inches (51 mm)
Back of heater	0 (zero)	0 (zero)
Front of heater	6 inches (152 mm)	6 inches (152 mm)
Sides of heater	2 inches (51 mm)	1/8 inch (3 mm)
Floor/ground	12 inches (305 mm)	12 inches (305 mm)
Vent	0 (zero)	0 (zero)
Closet	6 inches (152 mm) from front	6 inches (152 mm) from front

*Every vent connection must be accessible for inspection, cleaning and replacement.

CORROSIVE ATMOSPHERES

NOTICE: The water heater or intake air supply should not be installed near an air supply containing halogenated hydrocarbons or near swimming pool chemicals.

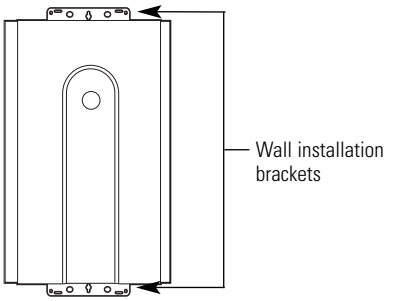
MOUNTING THE WATER HEATER

⚠ CAUTION: Reinforcement of the wall is required in case the wall is not strong enough to hold the water heater. Do not mount to drywall unless mounting screws are secured in wall studs.

Make sure the location of the water heater allows for easy access and operation.

Wall studs should be utilized when mounting the water heater to the wall. On masonry or concrete wall, use concrete anchors or lag bolts.

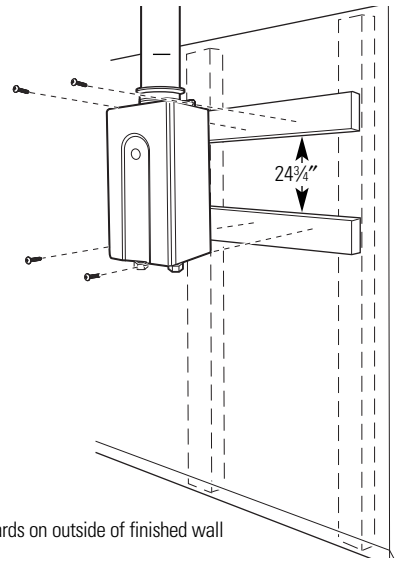
1. Identify the installation location and confirm that the installation will meet all required clearances. Use mounting template to locate screw and anchor locations.
2. Securely attach the water heater to the wall using the brackets located at the top and bottom of the water heater.
3. Ensure that the attachment strength is sufficient to support the weight. Refer to the weight of the water heater in the *Specification Guidelines*. Four mounting screws with 200 lb. tensile load capability are required at a minimum.



MOUNTING THE WATER HEATER (cont.)

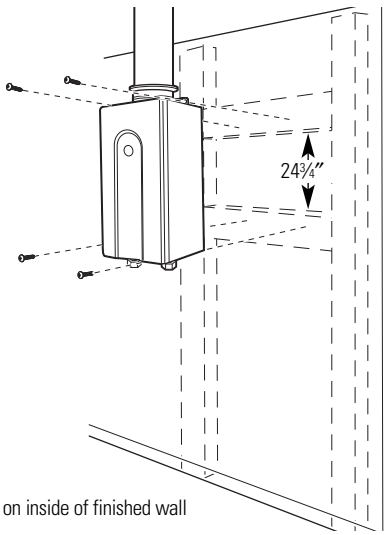
4 **FINISHED WALLS (Drywall) Option 1: Mount boards over drywall directly to studs in the wall.** When attaching the unit to a finished wall, mount two boards suitable for anchoring to wall studs. Level the unit during installation.

NOTE: Do not hang the unit on drywall only. The unit must be secured into wood mounting board.



Boards on outside of finished wall

FINISHED WALLS (Drywall) Option 2: Framed wall with boards behind the drywall. Mount the unit to boards in the wall. Do not use the screws provided to mount through drywall. Screws long enough to penetrate the drywall and provide at least 1″ of engagement in wood should be used. Screws should be rated to carry a tensile load of 200 lbs each. Level the unit during installation.



Boards on inside of finished wall

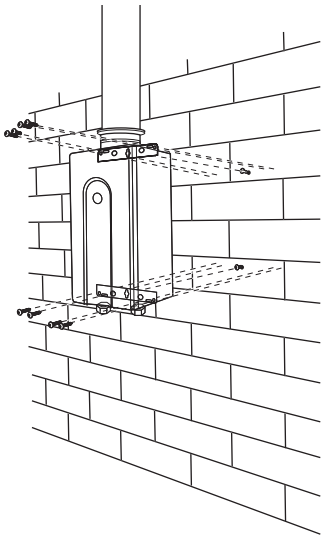
NOTES:

- Screws provided must fasten securely and directly into wood. If screws go through drywall and do not fully engage the wood stud, the installer must supply correct screws.
- Do not hang the unit on drywall only. The unit must be secured into wood mounting board.

MOUNTING THE WATER HEATER (cont.)

ON MASONRY OR CEMENT WALL: Mount 4 wall anchors (not supplied) in a wall suitable to carry 200 lbs minimum tensile load each. Level the unit during installation.

IMPORTANT: Anchors suitable for masonry or concrete are to be supplied by the installer.



CONNECTING THE WATER HEATER TO GAS AND WATER

1 GAS PIPING

GENERAL INSTRUCTIONS

- Make sure gas supply is off prior to making any connections to the water heater. A manual gas control valve, provided with this water heater, must be placed in the gas supply line to the water heater. A union can be used on the connection above the shut-off valve for the future servicing or disconnection of the unit.
- Check the type of gas and the gas inlet pressure before connecting the water heater. If the water heater is not of the gas type that the building is supplied with, DO NOT connect the water heater. Contact the dealer for the proper unit to match the gas type.
- Check the gas supply pressure immediately upstream at a location provided by the gas company. Supplied gas pressure must be within the limits shown in the *Specifications* section.
- Before placing the appliance in operation, all joints, including the heater, must be checked for gas tightness by means of leak detector solution, soap and water or an equivalent nonflammable solution, as applicable. (Since some leak test solutions, including soap and water, may cause corrosion or stress cracking, the piping shall be rinsed with water after testing, unless it has been determined that the leak test solution is noncorrosive.)
- Always use approved connectors to connect the unit to the gas line. Always purge the gas line of any debris before connection to the water heater.
- The gas supply line shall be gas tight, sized and so installed as to provide a supply of gas sufficient to meet the maximum demand of the heater and all other gas-consuming appliances at the location without loss of pressure.
- Any compound used on the threaded joint of the gas piping shall be a type which resists the action of liquefied petroleum gas (propane/LPG).
- **Refer to an approved pipe sizing chart if in doubt about the size of the gas line.**

1 GAS PIPING (cont.)

PIPE SIZING PROCEDURE

The gas supply to the home must be capable of handling the entire gas load of the home, calculated by adding the BTU rating of each gas appliance in the home. State and local codes must be met, as well as utility requirements, to ensure gas supply to the unit is adequate to meet the rated demand. Use the charts below as a guide to size the pipe from the utility meter to the tankless water heater. Gas line sizing is based on gas type, the pressure drop in the system, the gas pressure supplied and the gas line type. Refer to the *National Fuel Gas Code, NFPA 54*, and/or your local gas provider, for proper gas line sizing.

PIPE SIZING TABLE – NATURAL GAS

cubic feet per hour Schedule 40 Metallic Pipe
Inlet Pressure: less than 2 psi (55 inches W.C.)
Pressure Drop: 0.3 inches W.C.
Specific Gravity: 0.60

	PIPE SIZE (INCHES)			
Length	**3/4**	**1**	**1 1/4**	**1 1/2**
10	273	514	1060	1580
20	188	353	726	1090
30	151	284	583	873
40	129	243	499	747
50	114	215	442	662
60	104	195	400	600
70	95	179	368	552
80	89	167	343	514
90	83	157	322	482
100	79	148	304	455
125	70	131	269	403
150	63	119	244	366
175	58	109	224	336
200	54	102	209	313

PIPE SIZING TABLE – PROPANE GAS

cubic feet per hour Schedule 40 Metallic Pipe
Inlet Pressure: 11.0 inches W.C.
Pressure Drop: 0.5 inches W.C.
Specific Gravity: 1.50

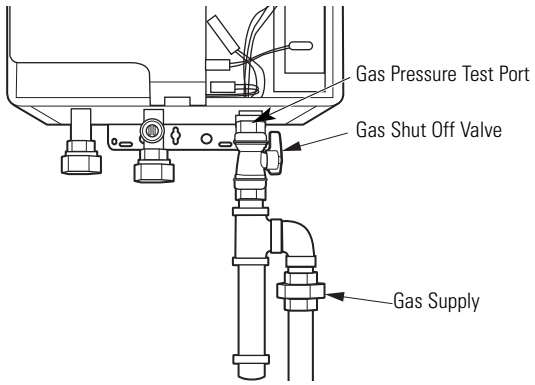
	PIPE SIZE (INCHES)			
Length	**1/2**	**3/4**	**1**	**1 1/4**
10	291	608	1150	2350
20	200	418	787	1620
30	160	336	632	1300
40	137	287	541	1110
50	122	255	480	985
60	110	231	434	892
80	101	212	400	821
100	94	197	372	763
125	89	185	349	716
150	84	175	330	677
175	74	155	292	600
200	67	140	265	543

2 CONNECTING THE WATER HEATER TO THE GAS SUPPLY

Connect the gas supply to the system following state and local plumbing codes. Use the supplied ball valve at the inlet to the system. Make sure the gas supply line to the water heater fits in the diagram shown on page 9. This is essential if a pipe cover accessory (model number AGTPCM) is to be installed.

IMPORTANT: Use a pipe wrench to securely hold on to the end of the water heater gas inlet to prevent twisting the inlet.

IMPORTANT: Leave the gas valve off until instructed to turn it on.



CONNECTING THE WATER HEATER TO GAS AND WATER (cont.)

3 WATER PIPING

GENERAL INSTRUCTIONS

- The water supply should be shut off while connecting the water heater. Make sure the water inlet and outlet lines to the water heater fit in the diagram shown on page 9. A manual water control valve must be placed in the water inlet connection to the water heater before it is connected to the water line. Unions can be used on both the hot and cold water lines for future servicing and disconnection of the unit.
- The piping (including soldering materials) and components connected to this appliance must be approved for use in potable water systems.
- Purge the water line to remove all debris and air. Debris will damage the water heater.
- Toxic chemicals such as those used for boiler water treatment are not to be introduced to the potable water used for space heating.
- If the appliance will be used as a potable water source, it must not be connected to a system that was previously used with a nonpotable water heating appliance.
- Ensure that the water filter on the water heater is clean and installed. See the *Cleaning the inlet filter* section in the checklist on page 23.
- New plumbing typically has contamination in the lines. The inlet water filter should be cleaned immediately after initial use.

CAUTION: Hot Water outlet pipes leaving unit can be hot to touch. Insulation must be used for hot water pipes below 36″ due to burn risk to children.

PRESSURE RELIEF VALVE

- Make sure the pressure relief valve is installed so there is clearance if the optional pipe cover (AGTPCM) is installed.
- An approved pressure relief valve is required by the *American National Standard (ANSI Z21.10.3)/Canadian Standard (CSA 4.3)* for all water heating systems.
- The relief valve must comply with the standard for *Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems (ANSI Z21.22)* and/or the standard *Temperature, Pressure, Temperature and Pressure Relief Valves and Vacuum Relief Valves, CAN1-4.4.*

3 WATER PIPING (cont.)

PRESSURE RELIEF VALVE (cont.)

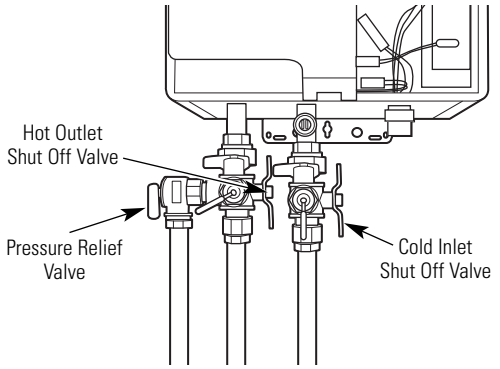
- The relief valve must be rated up to 150 psi and to at least the maximum BTU/hr of the appliance.
- The discharge from the pressure relief valve should be piped to the ground or into a drain system to prevent exposure or possible burn hazards to humans or other plant or animal life. Follow local codes. Water discharged from the relief valve could cause severe burns instantly, scalds or death.
- The pressure relief valve must be manually operated once a year to check for correct operation.
- The relief valve should be added to the hot water outlet line according to the manufacturer's instructions. DO NOT place any other type of valve or shut-off device between the relief valve and the water heater.
- Do not plug the relief valve and do not install any reducing fittings or other restrictions in the relief line. The relief line should allow for complete drainage of the valve and the line.
- If a relief valve discharges periodically, this may be due to thermal expansion in a closed water supply system. Contact the water supplier or local plumbing inspector on how to correct this situation. Do not plug the relief valve.
- Neither GE nor the *American National Standard (ANSI Z21.10.3)/Canadian Standard (CSA 4.3)* requires a combination temperature and pressure relief valve for this appliance; however, local codes may require a combination temperature and pressure relief valve.

INTERNAL BUILT-IN FREEZER PROTECTION

- The freeze protection features include electrical heating elements and intermittent firing of the burner. Freeze protection may be disabled if electricity or gas is not supplied, or if there is an error preventing the water heater from functioning.

NOTE: See SUPPLEMENTAL FREEZE PROTECTION on page 15.

CONNECTING THE WATER HEATER TO THE WATER SUPPLY



Water connections to the tankless water heater should follow all state and local plumbing codes.

If this is a standard installation, refer to the diagram on the following page under RECOMMENDED PIPING FOR BASIC INSTALLATION. If freeze protection valves are being installed, refer to the diagram under FREEZE PROTECTION FOR EXTERNAL PIPING on page 17.

1. Plumb water supply to the tankless water heater on the 3/4″ MNPT connection at the bottom of the unit marked WATER INLET.
2. Plumb the home hot water supply to the 3/4″ MNPT connection marked WATER OUTLET at the bottom of the unit.

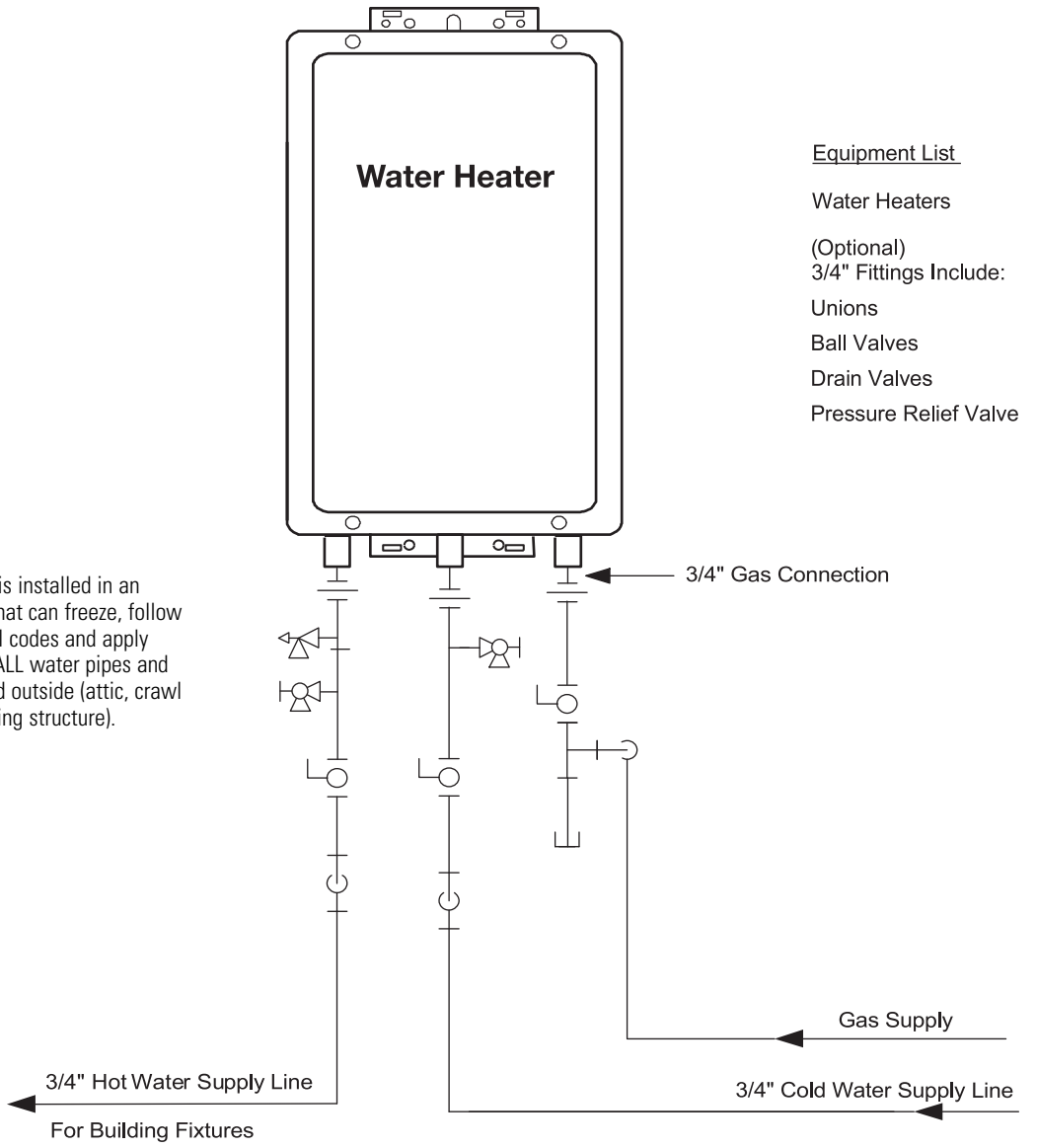
NOTE: Make sure water lines to the water heater fit in the diagram shown on page 9. This is essential if a pipe cover accessory (model number AGTPCM) is to be installed.

SUPPLEMENTAL FREEZE PROTECTION

If the unit is installed in an environment that can freeze, follow state and local codes and apply heat trace to ALL water pipe and fittings located outside (attic, crawl space or building structure).

It is highly recommended in areas where freezing temperatures occur to install automatic drain valves that work in the event of a power loss. Refer to the diagram in the FREEZE PROTECTION FOR EXTERNAL PIPING section (page 17). These valves should be wired to a supply current. In the event of a power loss, the system will drain automatically. Be sure to test this system after installation by turning off power to ensure the system drains properly.

RECOMMENDED PIPING FOR BASIC INSTALLATION



Equipment List	QTY
Water Heaters	1
(Optional) 3/4" Fittings Include:	
Unions	2
Ball Valves	2
Drain Valves	2
Pressure Relief Valve	1

NOTE: If unit is installed in an environment that can freeze, follow state and local codes and apply heat trace to ALL water pipes and fittings located outside (attic, crawl space or building structure).

KEY

- 3/4″ Ball Valve
- 3/4″ Union
- Pressure Relief Valve
- Boiler Drain Valve

This is not an engineered drawing; it is intended only as a guide and not as a replacement for professionally engineered project drawings. This drawing is not intended to describe a complete system; it is up to the contractor/engineer to determine the necessary components for and configuration of the particular system being installed. The drawing does not imply compliance with local building code requirements; it is the engineer's/contractor's responsibility to ensure the installation is in accordance with all local building codes. Confer with local building officials before installation.

FREEZE PROTECTION FOR EXTERNAL PIPING

IMPORTANT!

With electrical power supplied to the water heater, it will not freeze in environments as cold as -30°F, when protected from direct wind exposure.

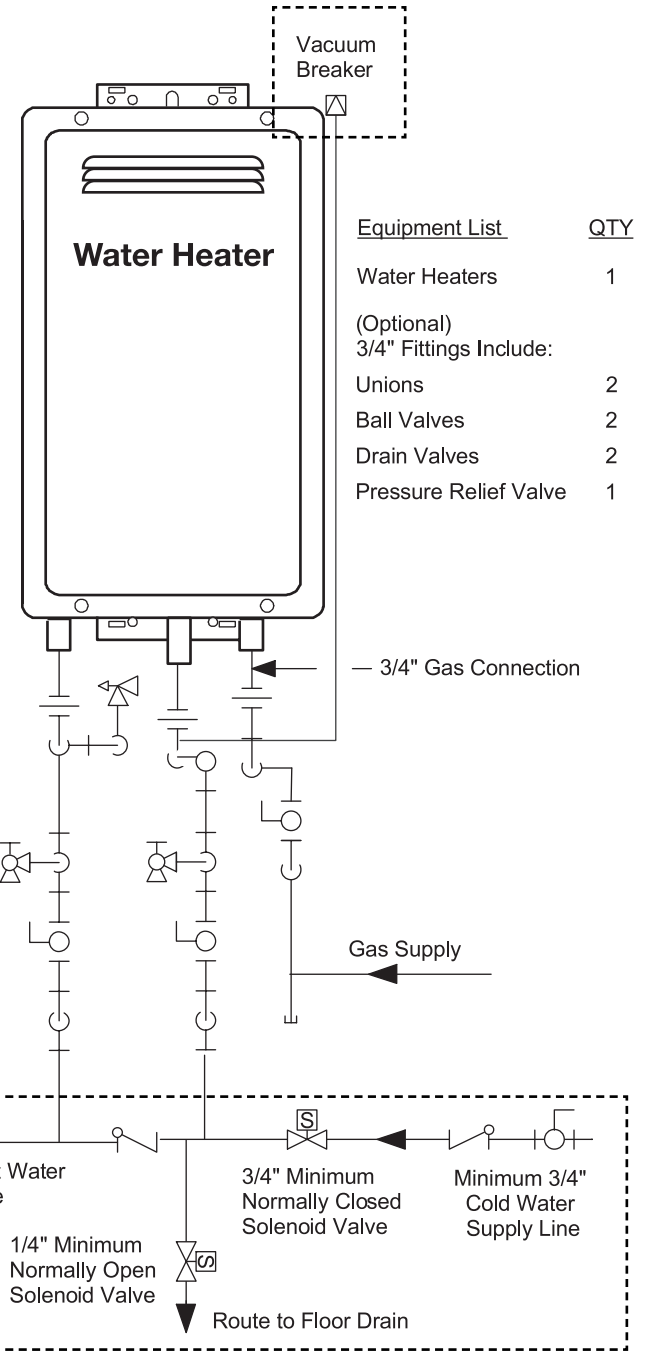
In the event of a power failure at temperatures below freezing, the water heater should be drained of all water to prevent freezing damage.

The unit may be drained manually, or through the installation of the optional solenoid valves as shown.

The unit may be drained manually; however, we highly recommend that drain-down solenoid valves be installed that will automatically drain the unit if power is lost.

When the electrical power to the water heater fails, the 3/4″ solenoid valve closes (stopping the flow of water into the heater) and the 1/4″ solenoid valve opens (allowing the water heater and associated piping to drain). Ensure that you run the drain for the solenoids to the outside environment to prevent discharging water inside the building, which can cause water damage.

NOTE: If the unit is installed in an environment that can freeze, follow state and local codes and apply heat trace to ALL water pipes and fittings located outside (attic, crawl space or building structure).


Vacuum Breaker
Water Heater
Equipment List QTY
Water Heaters 1
(Optional) 3/4" Fittings Include:
Unions 2
Ball Valves 2
Drain Valves 2
Pressure Relief Valve 1
3/4" Gas Connection
Gas Supply
NOTE:
All pipes and fittings shown in the dashed boxes should be located where they will not freeze. Suggest inside home or building structure.
Minimum 3/4" Hot Water Supply Line
3/4" Minimum Normally Closed Solenoid Valve
Minimum 3/4" Cold Water Supply Line
1/4" Minimum Normally Open Solenoid Valve
Route to Floor Drain

KEY

- 3/4″ Ball Valve
- 3/4″ Union
- Check Valve
- Pressure Relief Valve
- Pressure Regulator
- Circulating Pump
- Boiler Drain Valve
- Solenoid Valve

This is not an engineered drawing; it is intended only as a guide and not as a replacement for professionally engineered project drawings. This drawing is not intended to describe a complete system; it is up to the contractor/engineer to determine the necessary components for and configuration of the particular system being installed. The drawing does not imply compliance with local building code requirements; it is the engineer's/contractor's responsibility to ensure the installation is in accordance with all local building codes. Confer with local building officials before installation.

ELECTRICAL CONNECTION INFORMATION

⚠ WARNING – To reduce the risk of fire, electrical shock and personal injury:

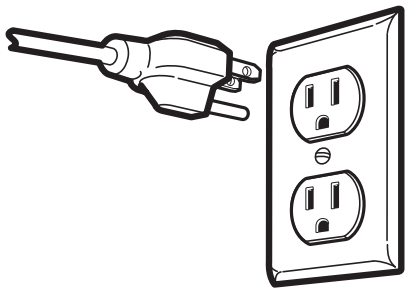
- Do not use an extension cord or an adapter plug with this appliance.
- The water heater must be electrically grounded in accordance with local codes and ordinances or, in the absence of local codes, in accordance with the NATIONAL ELECTRICAL CODE, ANSI/NFPA NO. 70, or the CANADIAN ELECTRICAL CODE, CSA C22.1.

ELECTRICAL REQUIREMENTS

This appliance must be supplied with 120V, 60Hz, and connected to a properly grounded branch circuit, protected by a 15- or 20-amp circuit breaker or time-delay fuse.

If electrical supply provided does not meet the above specifications, it is recommended that a licensed electrician install an approved outlet.

⚠ WARNING – This water heater is equipped with a three-prong (grounding) plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding terminal from this plug.



ENSURE PROPER GROUND EXISTS BEFORE USE. DO NOT REMOVE GROUND PRONG.

VENTING INSTRUCTIONS

Refer to the specific instructions on your vent product for additional installation requirements.

CONDENSATE

Regions of cold climate will create more condensate in the vent system.

Condensate formation can even occur in high-efficiency direct vent appliances. To prevent condensate damage, follow these instructions:

- First remove the black plastic cap, and use 5/8″ ID flexible PVC tubing to drain condensate.
- The condensate trap must contain a minimum of 3 inches (75 mm) of water. See page 8.
- Dispose of condensate per local codes.
- In applications where condensate could freeze, such as an unconditional attic space, care should be taken to prevent condensation line freezing. Refer to state and local codes for proper disposal of condensate.

⚠ WARNING: If the condensate collector is not used, the drain pipe must be capped to prevent exhaust gases and condensate from entering the building. The cap is supplied on the appliance.

⚠ CAUTION: Without proper drainage or disposal, condensate will damage the heat exchanger. Condensate collector on the unit must be properly connected.

VENTING INSTRUCTIONS (cont.)

MAXIMUM VENT LENGTH

Maximum System performance is achieved at a vent length of 21 equivalent feet or less. The system is capable of 41 equivalent feet vent length if required, but this reduces system performance. For vent length calculation, a 90-degree elbow counts as 6 feet and a 45-degree elbow counts as 3 feet.

1. Determine the number of 90-degree elbows in the vent system. (Two 45-degree elbows count as one 90-degree elbow.)
2. Refer to the table to find the maximum vent length based on the number of elbows.

Use the chart below to compute maximum permissible lengths for venting to outdoors.

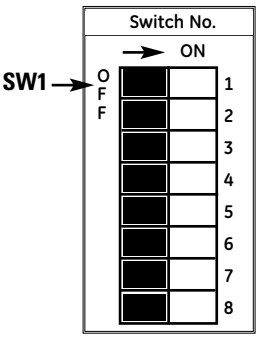
NOTE: Factory unit is set to vent up to 21 ft. for maximum performance. The unit can be reconfigured to 41 ft. See below or call 1.888.HOTWTER.

VENT LENGTH CALCULATIONS

CONCENTRIC VENT PIECE	EQUIVALENT LENGTH
Straight	1 ft. (per foot length)
90-degree elbow	6 ft. each
45-degree elbow	3 ft. each

Total vent length = # straight ft. + # 90-degree elbow x 6 ft. + # 45-degree elbow x 3 ft.

* If the length is greater than 21 ft. (6.4 m), then move dip switch no. 1 (SW1) to OFF.

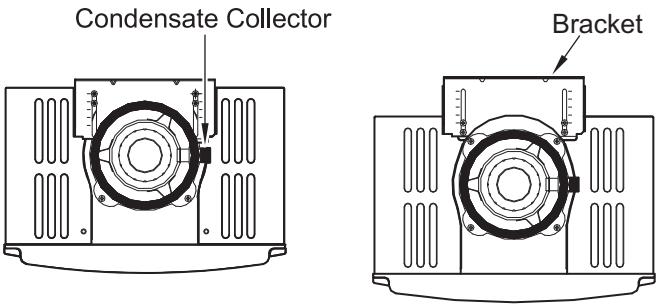


VENTING INSTRUCTIONS (cont.)

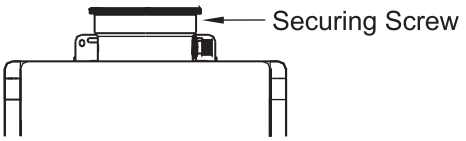
FLUE INSTALLATION – CONCENTRIC VENTING

To adjust the condensate collector position:

1. Loosen the 4 screws at the rear bracket.
2. Slide the bracket away from the female vent top.
3. Remove the 4 screws attaching the female vent top to the water heater.
4. Lift up the female vent top and reposition as desired (or replace with a male vent top).
5. Install the 4 screws at the vent top and tighten the 4 screws at the bracket.



Secure the first vent component to the water heater with one self-tapping screw at the hole located above the condensate collector.



VENTING INSTRUCTIONS (cont.)

VENT PRODUCTS

Listed and Tested Vent Products for GN75DNSRSA, GN94DNSRSA and GP94DNSRSA (concentric venting)

MANUFACTURER	PRODUCT	PARTS
Ubbink	Rolux Vent System	Refer to the manufacturer's technical literature for specific part numbers and instructions. At the time of printing, these manufacturers' products were listed and tested vent products. The installer must verify prior to installation if proper venting is used. For up-to-date approved vent materials, see http://directories.csa.international.org/ for the CSA Certification record with approved vent materials.
Heat-Fab	Saf-T Vent SC system	
Metal-Fab	Corr/Guard Vent/ Air Intake System	

VENT MANUFACTURER CONTACT INFORMATION FOR INSTALLATION INSTRUCTIONS AND PARTS LIST

Ubbink

Telephone: 888.HOTWTER
(888.468.9837)

Heat-Fab

Telephone: 1.800.772.0739

Web Site: www.heatfab.com

Metal-Fab Inc.

Telephone: 1.800.835.2830
1.316.943.2351

Web Site: www.metal-fabinc.com

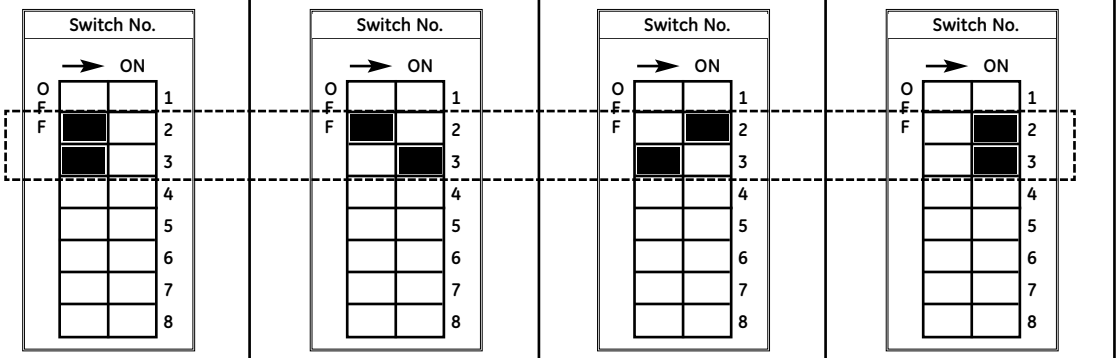
HIGH ALTITUDE INSTALLATIONS

Set dip switches 2 and 3 to the values shown in the table below for your altitude. The default setting for the appliance is 0-2000 ft (0-610 m) with switches No. 2 and No. 3 in the OFF position.

⚠ WARNING: Do not adjust the other dip switches unless specifically instructed to do so.

If unsure of the altitude in your location, call 1.888.HOTWTER (888.467.9837).

	0–2000 ft. (0–610 m)	2001–5200 ft. (610–1585 m)	5201–7700 ft. (1585–2347 m)	7701–10200 ft. (2347–3109 m)
Switch No. 2	OFF	OFF	ON	ON
Switch No. 3	OFF	ON	OFF	ON



CASCADING MULTIPLE WATER HEATERS

The Dual Connect Cable Kit (AGTDC1) is an optional accessory that connects 2 water heaters and allows them to function as one hot water source.

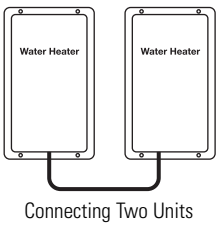
The Multi Connect Kit (AGTCK1) and the Multi Connect Cable Kit (AGTMC1) are optional accessories that connect 3 to 5 water heaters and allow them to function as one hot water source.

Refer to the instructions that come with the accessory for complete installation information.

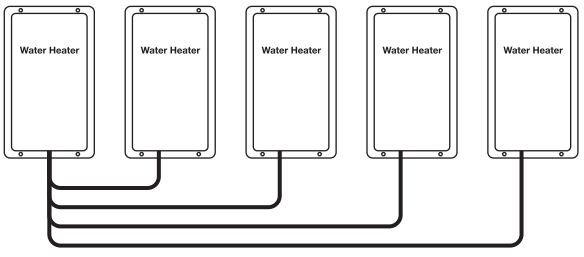
GUIDELINES

- Do not install the Dual Connect Cable Kit (AGTDC1) with the Multi Connect Kit (AGTCK1) and the Multi Connect Cable Kit (AGTMC1) because they are not designed to operate together.
- Water heaters should be installed less than 18 inches apart so that the cables will reach between units and to prevent temperature fluctuations (cold water sandwich effect) when the water is shut off and turned back on.
- Temperature settings can only be changed on the controller for the primary unit.

NUMBER OF CONNECTED WATER HEATERS	ACCESSORIES NECESSARY
2	(1) Dual Connect Cable Kit (AGTDC1)
3	(1) Multi Connect Kit (AGTCK1) and (1) Multi Connect Cable Kit (AGTMC1)
4	(1) Multi Connect Kit (AGTCK1) and (2) Multi Connect Cable Kits (AGTMC1)
5	(1) Multi Connect Kit (AGTCK1) and (3) Multi Connect Cable Kits (AGTMC1)



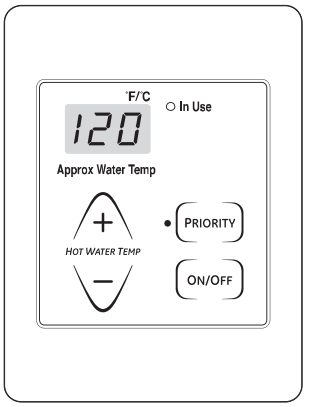
Connecting Two Units



Connecting Five Units

REMOTE CONTROLLER INSTALLATION

LOCATION

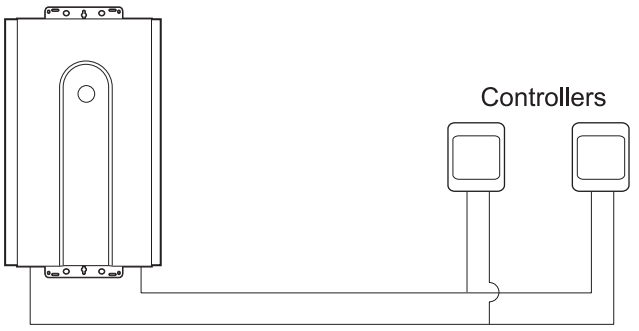


- The controller should be out of reach of small children.
- Avoid locations where the controller may become hot (near the oven or radiant heater).
- Avoid locations in direct sunlight. The digital display may be difficult to read in direct sunlight.
- Avoid locations where the remote controller could be splashed with liquids.
- Do not install in locations where it can be adjusted by the public.

CONFIGURATIONS

A maximum of 4 remote controllers can be installed for a water heater or bank of water heaters. Controllers can only be wired in parallel. Controllers cannot be wired in series.

If 4 AGTRC1's are installed, press the Priority and On/Off buttons on the fourth controller until a beep sounds.



Wire Controllers in Parallel

CABLE LENGTHS AND SIZE

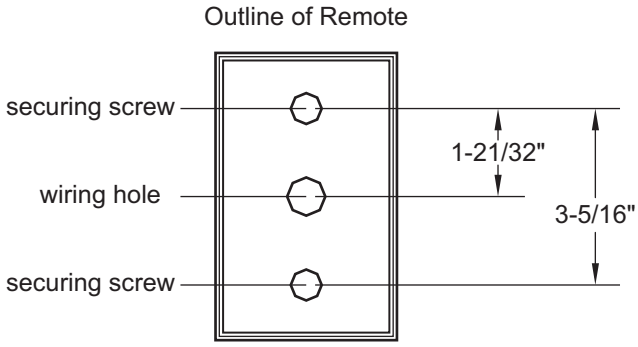
The cable for the remote controller should be a nonpolarized two-core cable with a minimum gauge of 22 AWG. The maximum cable length from each controller to the water heater depends on the total number of wired controllers connected to the water heater.

NUMBER OF WIRED CONTROLLERS	MAXIMUM CABLE LENGTH FOR EACH CONTROLLER TO WATER HEATER
1	328 ft. (100 m)
2	164 ft. (50 m)
3 or 4	65 ft. (20 m)

REMOTE CONTROLLER INSTALLATION (cont.)

MOUNTING THE CONTROLLER

1. Determine a suitable location for the controller.
2. Mount a single gang outlet box in the wall where the remote control is indicated.
3. Run the cable between the controller and the water heater or the controller and the other controller.
4. Remove the face plate from the remote controller, using a screwdriver.
5. Connect the cable to the remote controller.
6. Mount the controller to the wall in the single gang outlet box installed in step 2.
7. Disconnect the power from the water heater.
8. Remove the cover of the water heater.
9. Remove the plastic cover from the PCB and electrical connections.



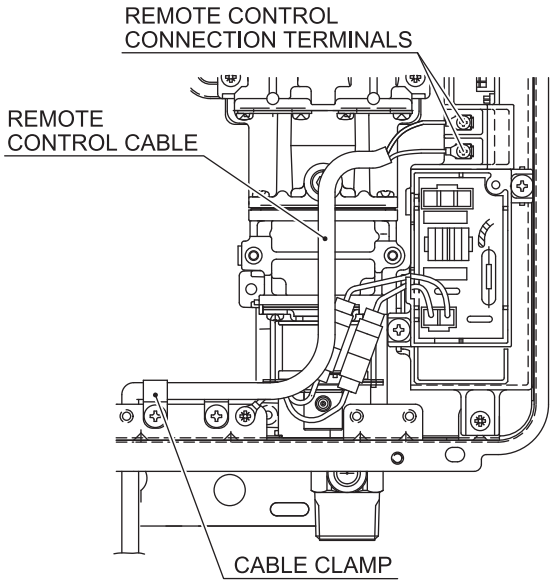
⚠ WARNING: DO NOT ATTEMPT TO CONNECT THE REMOTE CONTROLLERS WITH THE POWER ON.

10. Thread the cable through the access hole at the base of the unit and connect the wires to the controller terminals on the bottom right-hand side of the PCB.
11. Secure the controller cable using the clamp provided.

REMOTE CONTROLLER INSTALLATION (cont.)

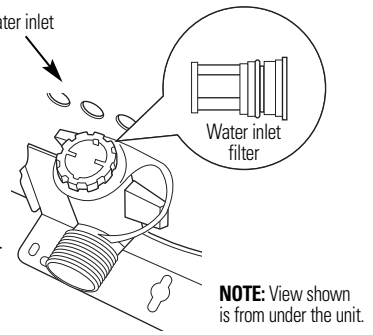
MOUNTING THE CONTROLLER (cont.)

12 Replace the plastic cover over the PCB, and then replace the cover of the water heater.



CLEANING THE INLET FILTER

It is imperative that control compartments, burners and circulating air passageways of the appliance be kept clean.



NOTE: View shown is from under the unit.

CAUTION: Before performing this action, first remove power to the water heater and be sure not to stand near the discharge line of the pressure relief valve. This will prevent a possible scald injury.

1 Turn off and disconnect electrical power. Allow water heater to cool.

2 Shut off water inlet.

3 Open hot water tap at nearest faucet.

4 Close outlet valve on unit.

5 Have a small pan or bucket ready to catch spilled water.

6 Remove and clean the water inlet filter with a small brush. If scale is present, clean in a white vinegar solution.

7 Replace water inlet filter.

8 Remove the front panel by removing 4 screws.

CLEANING THE INLET FILTER (cont.)

9 Use pressurized air to remove dust from the main burner, heat exchanger and fan blades. Do not use a wet cloth or spray cleaners on the burner. Do not use volatile substances such as benzene and thinners. They may ignite or fade the paint.

10 Use soft dry cloth to wipe cabinet.

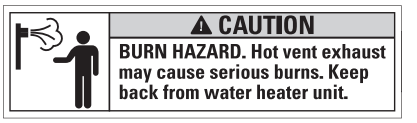
11 Open water valves.

12 Check for leaks.

13 Connect electrical power and turn on the unit.

INSTALLATION CHECKLIST

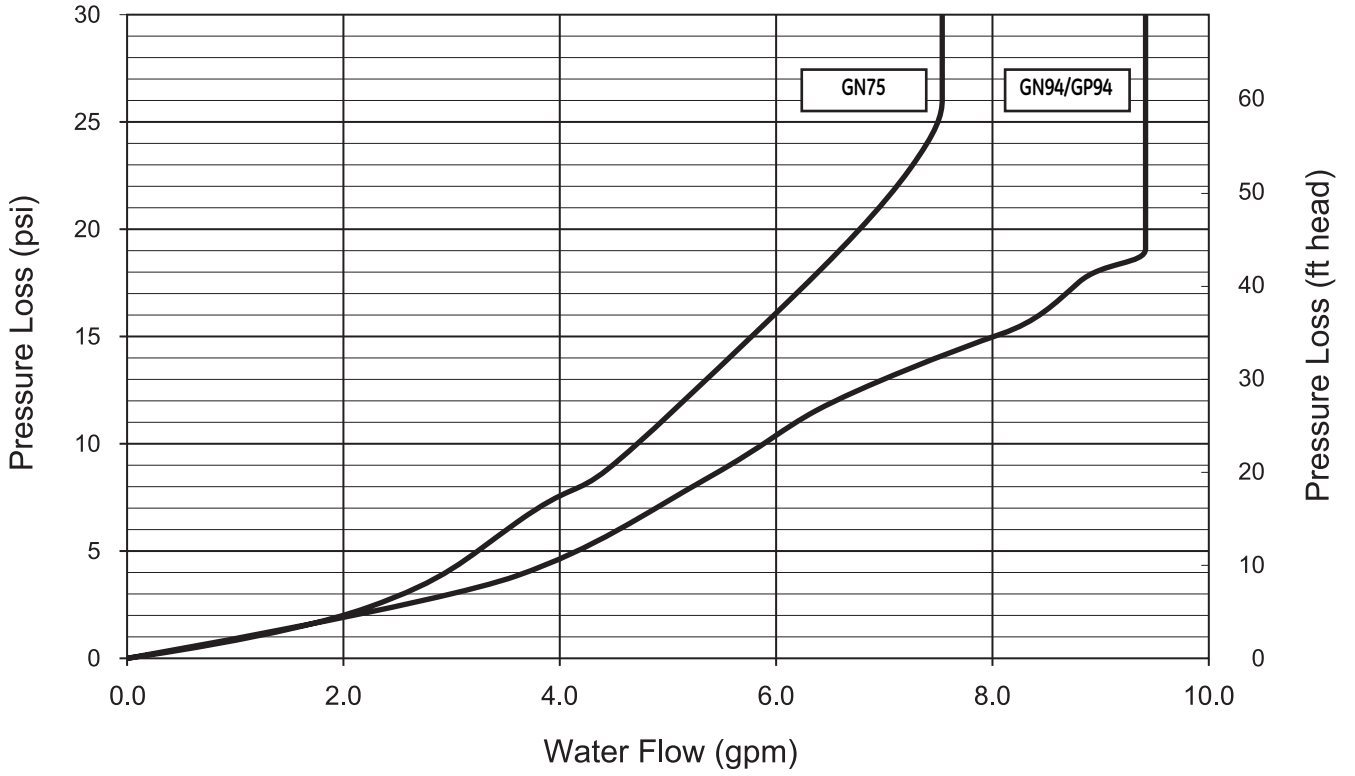
- Ensure 120 Volts A.C. is connected to the unit and that the circuit is turned on.
- Verify the gas system is functioning correctly by connecting your manometer to the gas pressure test port on the unit (see page 13). Operate all gas appliances in the facility. The inlet gas pressure on the unit **MUST NOT DROP BELOW** that listed on the unit rating plate for the gas type being used. A manometer can be used to check the pressure.
- Make sure you have cleaned the COLD water inlet filter screen.
- Inspect HOT (outlet) and COLD (inlet) water lines to ensure they have not been crossed and are leak-free.
- Ensure the manual gas valve packaged with the water heater is installed in the gas supply line (see page 12).
- Ensure the controller is installed and functioning. Instruct the consumer on how to operate the controller. Instructions are always supplied in the Owner's Manual (see page 22). A typical water temperature set point is 120 degrees.
- Explain to the customer the importance of never blocking the vent ducting, intake and exhaust. Never store anything around the vent exhaust.
- Ensure you have used the correct venting products for the model installed and that you have completely followed the venting installation instructions (see pages 19–20).
- Ensure the condensate collector drain on the unit is installed to allow condensation to drain away from the water heater to a proper drain source (see page 8).
- The vent system should not exceed the maximum length for the number of elbows used. Refer to the venting maximum length chart on page 19. Apply the vent temperature caution label to the vent terminal located outside the home.



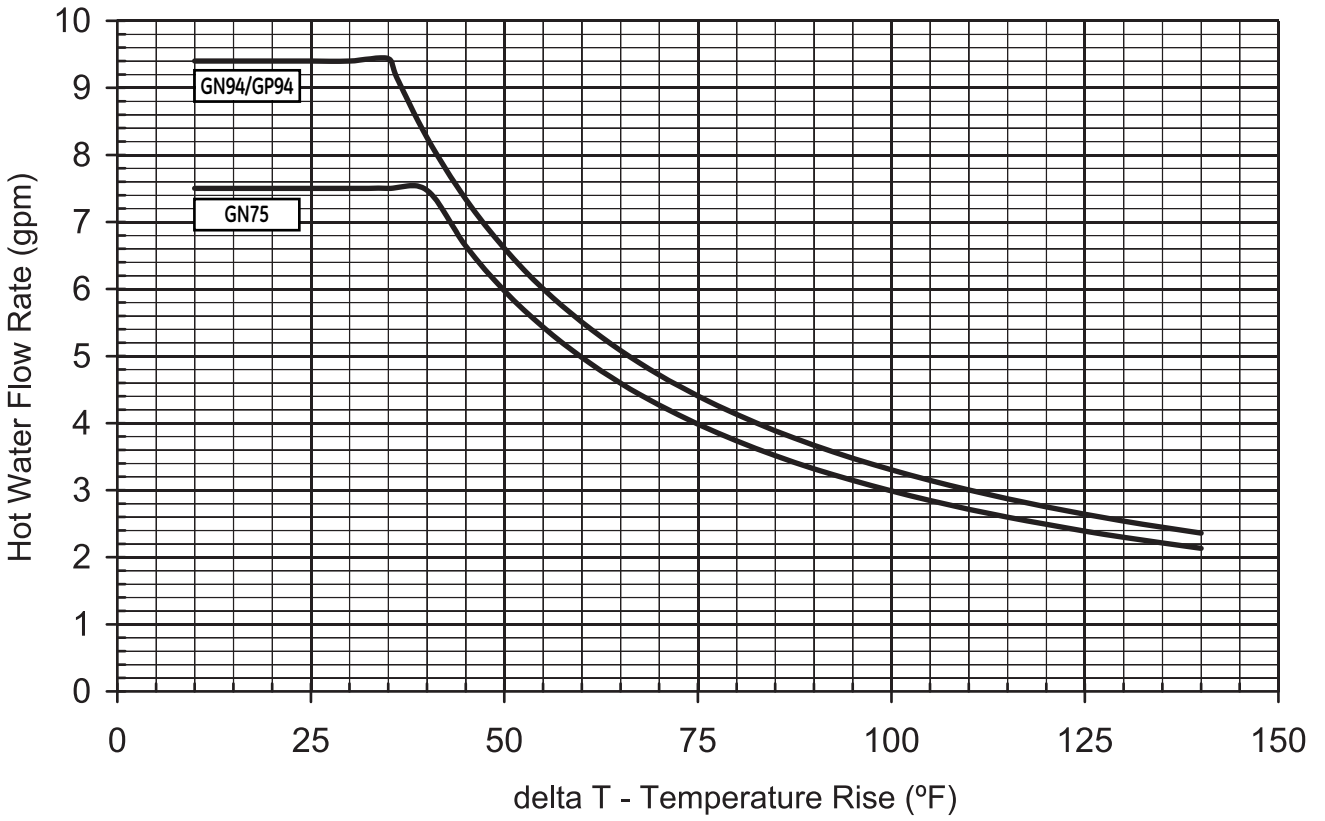
- For instructions on operating the unit, refer to the Owner's Manual.

TECHNICAL DATA

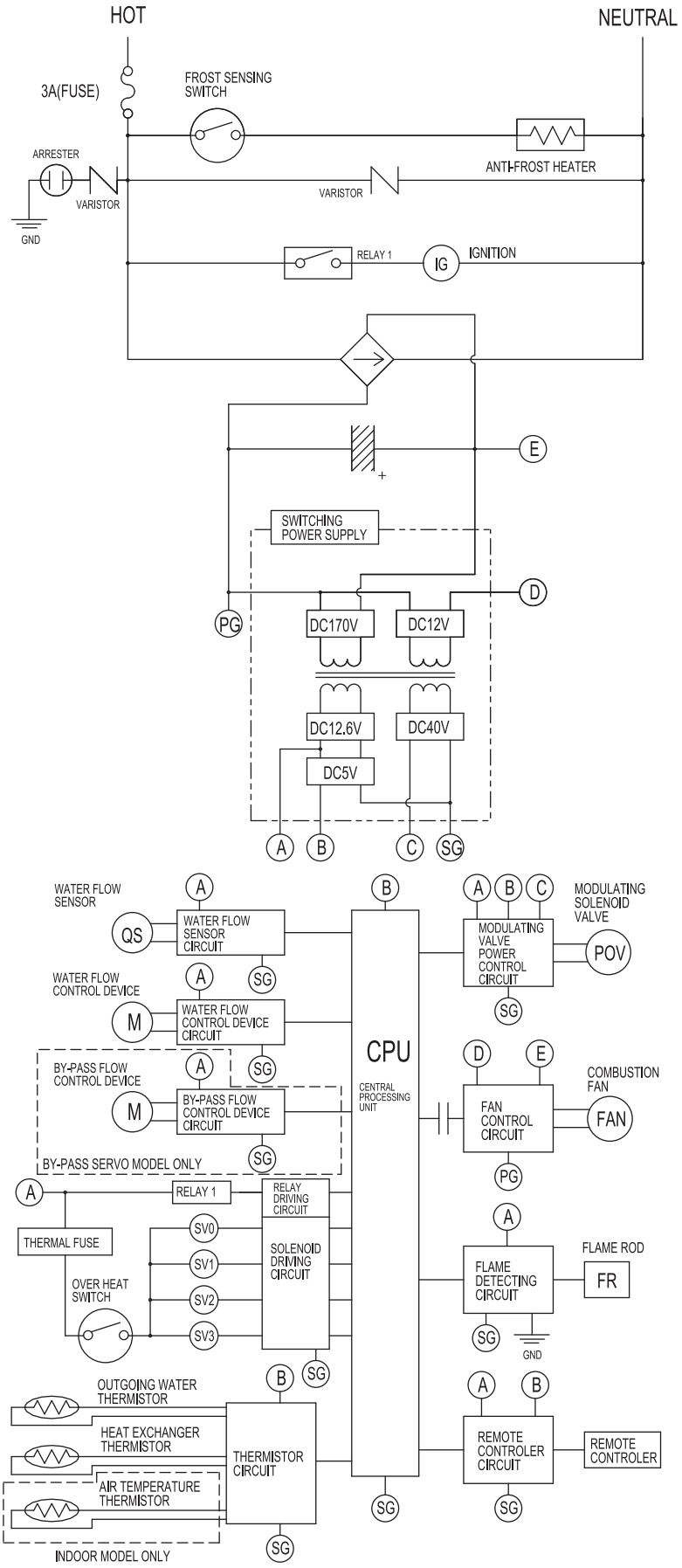
PRESSURE DROP CURVE



OUTLET FLOW DATA



LADDER DIAGRAM



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